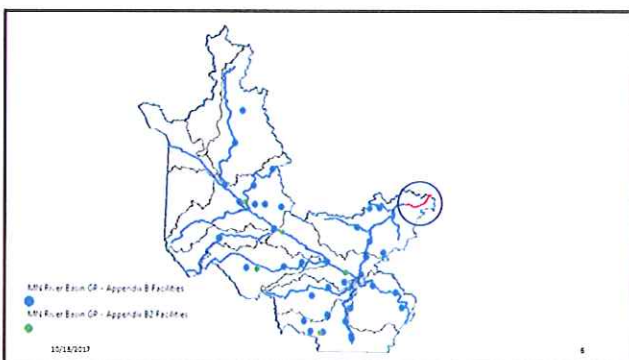
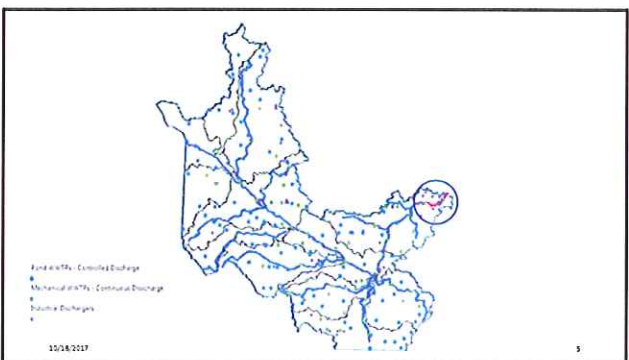
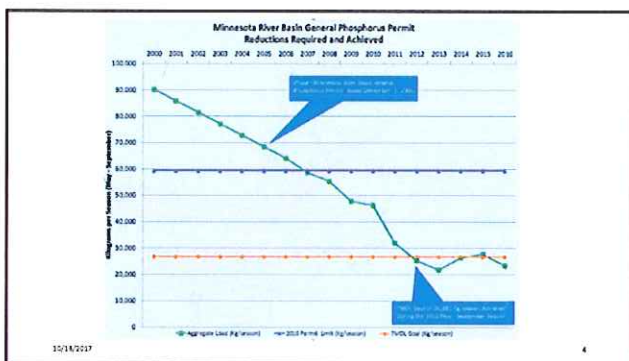
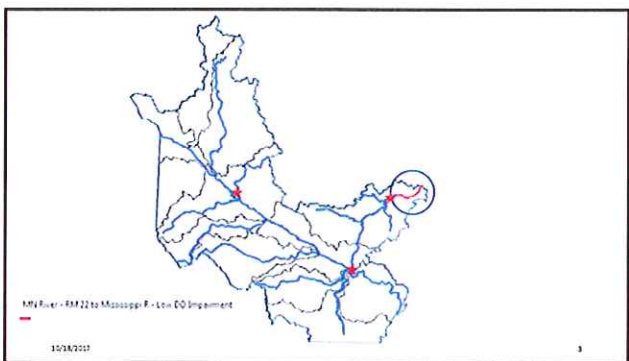
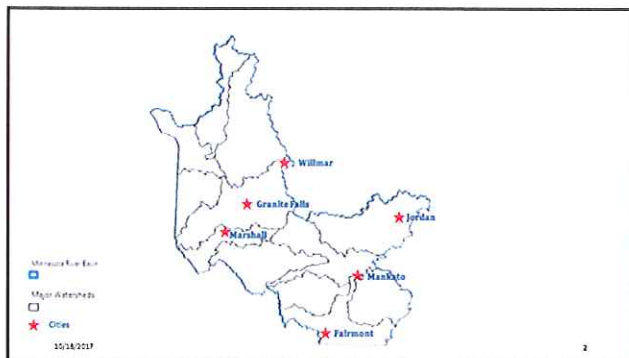
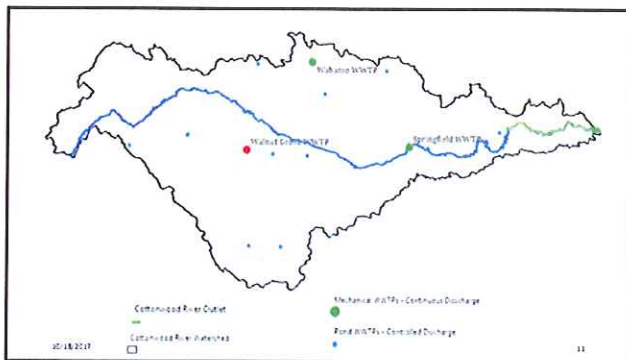
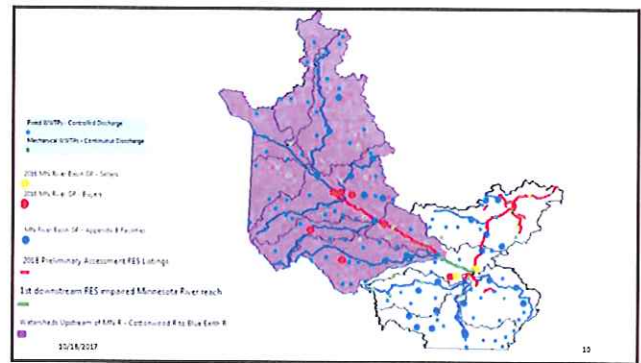
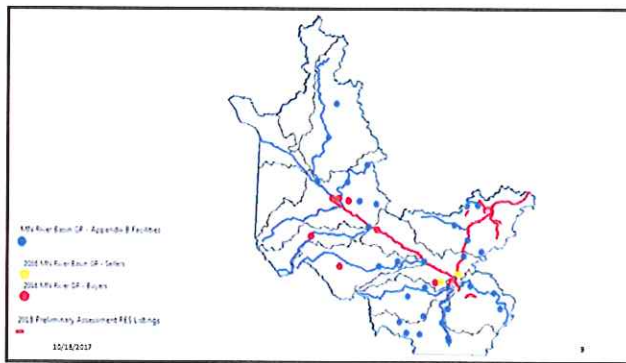
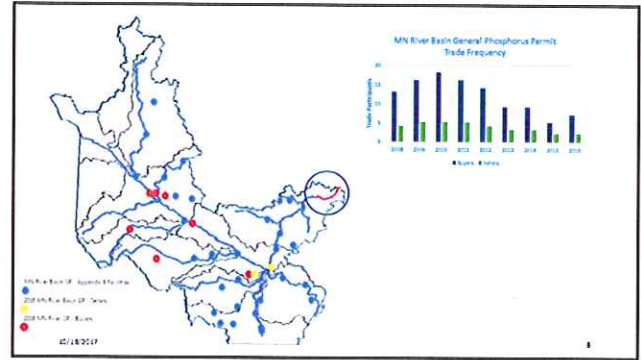
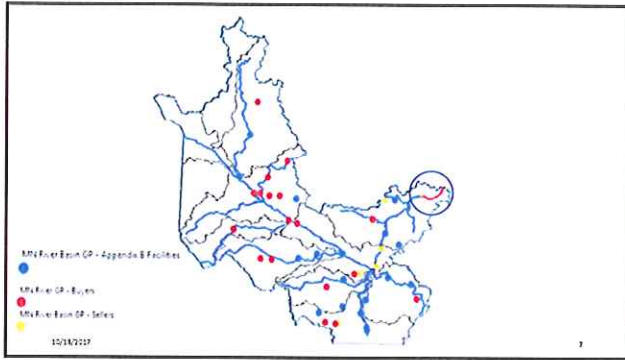


**MINNESOTA POLLUTION CONTROL AGENCY**

**Minnesota River Basin Water Quality Trading Update**

Marco Graziani  
October 18, 2017





### Redwood Falls WWTP & New Ulm WWTP

- Buyer: Redwood Falls WWTP
- Seller: New Ulm WWTP
- Target waterbody: Lake Pepin
- Pollutant: Total Phosphorus
- Trade start year: 2016
- Credit demand: 1,384 lbs/year
- Credit supply: 1,522 lbs/year
- Unit cost: \$25/kg
- Trade ratio: 1.1:1

10/18/2017

### Rahr Malting Company, Shakopee

- **Receiving water:** Minnesota River
- **Pollutant:** Carbonaceous Biochemical Oxygen Demand (CBOD)
- **Trade start year:** 1997
- **Credit supply:** 212.8 lbs/year
- **Trade ratio:** 2.6:1
- **Trading projects:** Five trades on four sites:
  - Trade site 1 - Riparian area natural and woody vegetation establishment on Minnesota River
  - Trade site 2 - Riparian area natural and woody vegetation establishment on Cottonwood River
  - Trade site 3 - Livestock exclusion and bank stabilization on 8 Mile Creek
  - Trade site 4 - Bluff stabilization on Rush River

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### Rahr Malting 8 Mile Creek streambank restoration



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### Southern Minnesota Beet Sugar Cooperative, Renville County

- **Receiving water:** County Ditch 37 and County Ditch 45
- **Pollutant:** Phosphorus
- **Trade start year:** 1999
- **Trading projects:** Three trading projects on one site and one trading practice on many sites:
  - Trade site 1 - Cattle exclusion, filter strip and bank stabilization on East Fork of Beaver Creek
  - Trade site 2 - Cover crops planted on beet fields

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### Southern Minnesota Beet Sugar Cooperative West Fork Beaver Creek streambank restoration



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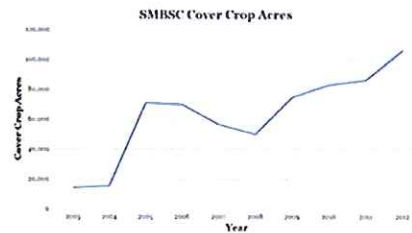
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### Southern Minnesota Beet Sugar Cooperative spring cover crops



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Source: 2013 SMBSC Sustainability and Green Initiative presentation  
<http://smbc.com/pdf/2013SustainabilityOverview.pdf>

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### Princeton (MN) Wastewater Treatment Facility

- Receiving water: Rum River
- Pollutant of concern: Phosphorus
- Receiving water: Rum River
- Trade start year: 2015
- Credit supply: 1,717 kg/year
- Trade ratio: 2.6:1
- Five Rum River streambank stabilization projects
  - Prevent erosion of an estimated:
    - 8,924 metric tons of soil/year and
    - 4,465 kg of phosphorus per year

Trade site	Trade volume kg/year
Trade 1 - Highway 95 site	753
Trade 2 - Princeton Middle School site	1,167
Trade 3 - Golf course site	271
Trade 4 - Abney Recycling site	1,691
Trade 5 - Princeton Elementary School	373
<b>Total Offset</b>	<b>4,465</b>
<b>Trade Ratio</b>	<b>2.6</b>
<b>Associated Phosphorus Effluent Limit (kg/yr)</b>	<b>1,717</b>

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### Trunk highway 95 site



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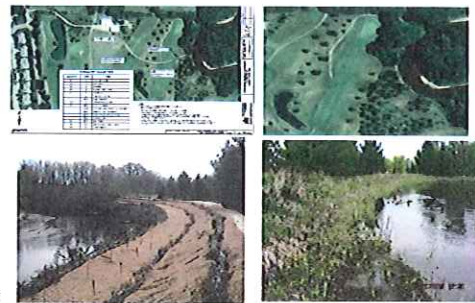
### Princeton Middle School site



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### Golf course site



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### Abney Recycling site



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### Root wads details



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Thank you!

Marco Graziani



